MARYLAND HISTORICAL TRUST
NR-ELIGIBILITY REVIEW FORM

NR Eligible: yes X **no** ___

Property Name: Baltimore County Bridge B0070 Inventory Number: BA-2849

Address: Benson Mill Road, 1/2 mi. E of Falls Road City: Berean Zip Code: 21152

County: Baltimore USGS Topographic Map: Hereford

Owner: Baltimore County Department of Public Works

Tax Parcel Number: N/A Tax Map Number: N/A Tax Account ID Number: N/A

Project: Replacement of Bridge No. B-0070 Agency: Baltimore County Department of Public Works

Site visit by MHT Staff: X no ___yes Name: _____ Date: _____

Eligibility recommended X Eligibility **not** recommended ____

Criteria: X A ___ B X C ___ D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Is the property located within a historic district? X no ____yes Name of district: _____

Is district listed? ___no ___yes Determined eligible? ___no ____yes District Inventory Number: _____

Documentation on the property/district is presented in:

Description of Property and Eligibility Determination: *(Use continuation sheet if necessary and attach map and photo)*

The Baltimore County Bridge B0070 on Benson Mill Road is a single span, earth-filled concrete arch bridge that crosses Blackrock Run near the rural community of Berean, Maryland. Constructed circa 1909, the bridge runs east to west and features closed spandrels and flared wingwalls. Modest decorative treatments include paneled parapet walls and half-round edging along the arch.

Bridge B0070 is eligible for the National Register under Criterion A for its association with innovation in early-twentieth century transportation infrastructure in Maryland and Criterion C for engineering and architectural character. The bridge is one of three remaining reinforced concrete arch bridges from the first decade of the twentieth century in Maryland. Also, it was determined eligible for listing in the National Register of Historic Places by the Interagency Review Committee in June 1996.

Prepared by: Tim Tamburrino Date Prepared: January 2001

MARYLAND HISTORICAL TRUST REVIEW

Eligibility recommended X **Eligibility not recommended** _____

Criteria: X **A** ___ **B** X **C** ___ **D** **Considerations:** ___**A** ___**B** ___**C** ___**D** ___**E** ___**F** ___**G** ___**None**

Comments: _____

Reviewer, Office of Preservation Services — Date 1/25/01

Reviewer, NR program — Date 1/30/01

Baltimore County Bridge B0070
MIHP No. BA-2849
Benson Mill Road over Blackrock Run
Berean Vicinity, Baltimore County
1909

Public

Description

The Baltimore County Bridge B0070 on Benson Mill Road is a single-span, reinforced concrete arch structure that crosses Blackrock Run near the rural community of Berean, Maryland. Constructed circa 1909, the bridge runs east to west and features closed spandrels and flared wingwalls. Modest decorative treatments include parapet walls replete with incised panels and half-round spandrel edging. According to a 1997 inspection report, the bridge is in poor condition with a sufficiency rating of 27.4.

Significance Statement

Baltimore County Bridge B0070 that carries Benson Mill Road over Blackrock Run retains much of the Character-Defining Elements (CDEs) of a closed spandrel, reinforced concrete arch bridge as described in the *Historic Highway Bridges in Maryland: 1631-1960. Historic Context Report.* Deteriorated and in poor condition, the bridge is nonetheless significant under Criterion A for its association with innovation in early-twentieth century transportation infrastructure. The resource is also significant under Criterion C for engineering and architectural character. The bridge was determined eligible for listing in the National Register of Historic Places by the Interagency Review Committee in June 1996. A Memorandum of Agreement between the Maryland Historical Trust and the United States Army Corps of Engineers, and the Baltimore County Department of Public Works stipulated that this MIHP documentation form be provided as mitigation for the proposed demolition of the bridge.

BA-2849

History

By the early twentieth century, with the advent of the automobile, increased traffic, and improved methods of bridge construction, Baltimore County embarked upon an ambitious program of infrastructure enhancement. Between 1902 and 1929 the Baltimore County Roads Engineer reported that 742 "concrete bridges and culverts" had been built (Baltimore County, 1908-1929). It was during this period that Bridge B0070 was constructed near the rural community of Berean. Probably erected in 1909, the structure is typical of how concrete bridge construction combined low maintenance and durability with modest architectural embellishment. Judging from the integration of the parapet walls with the rest of the bridge's superstructure, the bridge appears to be similar to Luten-designed bridges that utilized patent #853,203. Close inspection of the bridge's construction, however, reveals that the transverse reinforcing straps are not placed as depicted in the Luten arch patent. The lack of a bridge plaque or contract number makes more precise dating and attribution difficult. The bridge is currently slated for demolition and replacement by the Baltimore County Department of Public Works.

Maryland Historical Trust
Maryland Inventory of
Historic Properties Form

Inventory No. BA-2849

1. Name of Property (indicate preferred name)

historic

other Baltimore County Bridge B0070

2. Location

street and number Benson Mill Road approx. ½ mile E of its int. with Falls Road __ not for publication

city, town Berean x__ vicinity

county Baltimore County

3. Owner of Property (give names and mailing addresses of all owners)

name Baltimore County Department of Public Works, Bureau of Highways and Equipment Maintenance

street and number 111 West Chesapeake Avenue telephone 410-887-3560

city, town Towson state Md zip code 21204

4. Location of Legal Description

courthouse, registry of deeds, etc. Baltimore County Courthouse liber folio

city, town tax map tax parcel tax ID number

5. Primary Location of Additional Data

_____ Contributing Resource in National Register District
_____ Contributing Resource in Local Historic District
_____ Determined Eligible for the National Register/Maryland Register
_____ Determined Ineligible for the National Register/Maryland Register
_____ Recorded by HABS/HAER
_____ Historic Structure Report or Research Report at MHT
__x__ Other: Maryland Inventory of Historic Bridges, State Highway Authority, Closed Arch Bridges

6. Classification

Category
_____district
_____building(s)
__x__structure
_____site
_____object

Ownership
__x__public
_____private
_____both

Current Function
_____agriculture
_____commerce/trade
_____defense
_____domestic
_____education
_____funerary
_____government
_____health care
_____industry
_____landscape
_____recreation/culture
_____religion
_____social
__x__transportation
_____work in progress
_____unknown
_____vacant/not in use
_____other:

Resource Count

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
1	_____	structures
_____	_____	objects
1	_____	Total

Number of Contributing Resources previously listed in the Inventory
1

7. Description

Inventory No. BA-2849

Condition

___ excellent	x deteriorated
___ good	___ ruins
___ fair	___ altered

Prepare both a one paragraph summary and a comprehensive description of the resource and its various elements as it exists today.

Summary

The Baltimore County Bridge B0070 on Benson Mill Road is a single span, earth-filled concrete arch bridge that crosses Blackrock Run near the rural community of Berean, Maryland. Constructed circa 1909, the bridge runs east to west and features closed spandrels and flared wingwalls. Modest decorative treatments include paneled parapet walls and half-round edging along the arch. According to a 1997 inspection report, the bridge is in poor condition with a sufficiency rating of 27.4

Comprehensive Description

Situated at the bottom of a steep wooded hollow that contains the southward meandering Blackrock Run, bridge B0070 carries Benson Mill Road a winding, narrow, rural road that connects Falls Road to Yeoho and Cedar Grove Roads. The vicinity immediately surrounding the structure is distinguished by its rural character. Rolling cultivated fields of corn as well as wooded tracts lie to the south, north, and east while a circa 1851 two story brick dwelling replete with agricultural buildings is located a few hundred feet to the west on a hillside and close to the road. Interestingly, the primary elevation of the house faces towards the bridge (to the east). A modern house constructed in 1991 is located southwest of the bridge and an early twentieth century farmhouse lies to the east.

The dimensions of the bridge testify to its relatively small size. The total length of the bridge is 31 feet with the clear span measuring 29 feet. The spandrel walls are approximately 5 feet tall and 14 feet wide. The wingwalls are 4 feet wide by 4 feet tall. The bridge has a rise of approximately 3 feet 4 inches from springline to crown. There is a clear roadway width of 15 feet 7 inches, with an overall bridge width of 17 feet 7 inches. Each parapet is adorned on the roadside and streamside by five incised panels that measure 5 feet long by 1 foot high. The parapet walls are integrated into the bridge's superstructure thus providing longitudinal and transverse reinforcing. More recent metal guardrails have been bolted to the bridge's parapet walls. Horizontal seepage lines on the wingwalls provide evidence of how this component of the structure was constructed using wood forms and poured, reinforced concrete. The fill materials of the spandrels appears to be of earth.

Since its initial construction, the bridge has been repaired several times as the spandrel walls, in particular, contain multiple campaigns of patching and repairwork. Other forms of deterioration are plainly evident. Efflorescence and moderate cracking, for instance, are visible on the arch barrel and there are small areas of scale and reinforcement bar exposure at the joint of the parapet and spandrel wall. One of the parapet walls exhibits extreme scaling causing the aggregate to become exposed. Portions of the panels are also cracked. Lastly, Blackrock Run has partially undermined parts of the abutments and wing walls.

8. Significance

Inventory No. BA-2849

Period	Areas of Significance	Check and justify below		
__ 1600-1699	__ agriculture	__ economics	__ health/medicine	__ performing arts
__ 1700-1799	__ archeology	__ education	__ industry	__ philosophy
__ 1800-1899	__ architecture	x engineering	__ invention	__ politics/government
x 1900-1999	__ art	__ entertainment/ recreation	__ landscape architecture	__ religion
__ 2000-	__ commerce		__ law	__ science
	__ communications	__ ethnic heritage	__ literature	__ social history
	__ community planning	__ exploration/ settlement	__ maritime history	x transportation
	__ conservation		__ military	__ other:

Specific dates circa 1909 (constructed) **Architect/Builder**

Construction dates circa 1909

Evaluation for:

_____ National Register _____Maryland Register _____not evaluated

Prepare a one-paragraph summary statement of significance addressing applicable criteria, followed by a narrative discussion of the history of the resource and its context. (For compliance projects, complete evaluation on a DOE Form – see manual.)

Significance Summary

Baltimore County Bridge B0070 that carries Benson Mill Road over Blackrock Run retains much of the Character-Defining Elements (CDEs) of a closed spandrel, concrete arch bridge as mentioned in the *Historic Bridges in Maryland: Historic Context Report*. Its structural components including the single-span, closed spandrel, flared wing walls, and arch barrel all remain intact. The bridge also exhibits much of its original architectural elaboration including paneled parapet walls and half-round edging on the arch. Deteriorated and in poor condition, the bridge is nonetheless significant under Criterion A for its association with innovation in early-twentieth century transportation infrastructure in Maryland and Criterion C for engineering and architectural character. The bridge, one of three remaining reinforced concrete arch bridges from the first decade of the twentieth century in Maryland, was determined eligible for listing in the National Register of Historic Places by the Interagency Review Committee in June 1996.

Narrative

For much of the nineteenth century, the narrow rural roads of Baltimore County followed winding routes that responded to the rolling contours of the region's landscape. Traversing these roadways was complicated by the large number of stream and river crossings. For much of the nineteenth century these waterways were spanned by expedient timber frame and stone structures as early road engineers sought to build inexpensive roadways within a reasonable amount of time. The Benson Mill Road crossing of the Blackrock Run was more than likely a timber frame in the nineteenth century. The 1877 G.M. Hopkins Map of the area reveals that the early structure had to cross two branches of Blackrock Run. Interestingly, the area immediately around this structure featured a mill, as well as J. L. Benson's dwelling and store (Hopkins, np.). The circa 1851 Benson House still remains and contributes to the integrity of bridge's setting.

By the early twentieth century, with the advent of the automobile, increased road traffic, and improved methods of bridge construction, Baltimore County embarked upon an ambitious program of infrastructure enhancement. Between 1902 and 1929 the Baltimore County Roads Engineer reported that 742 "concrete bridges and culverts" had been built (Baltimore County, 1908-1929). The number of concrete bridges built in Baltimore

County is not surprising since the first reinforced concrete span in the state was built in the county in 1903. The wholesale replacement of timber with concrete, iron, and stone bridges was recommended as far back as 1898 and 1900 by engineers for the Maryland Geological Survey and Baltimore City. It was not until 1908 that Baltimore County mounted a vigorous campaign of replacement in an effort to reduce maintenance costs. A year later a single span, closed spandrel, reinforced concrete bridge spanning Blackrock Run was erected near the rural community of Berean. The structure is typical of how concrete bridge construction combined low maintenance and durability with modest architectural embellishment. The parapet walls of the bridge, for instance, features a series of five incised panels while the arch is elaborated by modest half-round edging.

These structural and aesthetic characteristics draw comparisons in terms of style and date to a design patented by Daniel Luten in 1907 (patent number 853,203). While it is impossible to state that the bridge is, or is not, a patented Luten arch, the bridge does not contain any unique structural aspects familiar to the Luten arch patent. Both the Benson Mill Road Bridge and the Luten arch design utilize longitudinal and transverse reinforcing; however, this is inherently common to all concrete arches. The distinctive feature of the Luten patent number 853,203 design is the use of transverse reinforcing which weaves up into the depth of the arch section between the longitudinal reinforcing and which creates reinforced parapet walls that act with the superstructure to carry the load. An examination of the transverse reinforcing straps exposed by spalls on the intrados of the Benson Mill Bridge reveal that the reinforcement utilized by the Benson Mill Road Bridge is not placed as depicted in Luten arch patent number 853,203.

Since its initial construction, the bridge has been subject to several campaigns of repairs and patching especially on the spandrel walls. In addition to these repairs, the arch barrel has been subject to efflorescence and moderate cracking. The parapet walls exhibit extreme scaling which has caused the concrete's aggregate to become exposed. Due to the bridge's poor condition, the Baltimore County Department of Public Works plans on demolishing the bridge and replacing it. This MIHP form serves as mitigation for the adverse effect upon the bridge.

9. Major Bibliographical References

Inventory No. BA-2849

Baltimore County Roads Engineer. 1909-1911. *Annual Report of the Baltimore County Roads Engineer.* Towson, Maryland

Crosby, Walter Wilson. 1908. *Second Report on State Highway Construction for the Period from January 1, 1906 to January 1, 1908.* Maryland Geological Survey. Baltimore: The Johns Hopkins University Press.

Hopkins, G.M. *Atlas of Baltimore County, Maryland.* Philadelphia, PA: G. M. Hopkins, 1877.

Luten, Daniel B. 1912. Concrete Bridges. *American Concrete Institute Proceedings.* 8:631-640.

-----. 1917. *Reinforced Concrete Bridges.* Indianapolis: National Bridge Company.

P.A.C. Spero & Company and Louis Berger & Associates. July 1995. Historic Highway Bridges in Maryland: 1631-1960. Historic Context Report. Revised October 1995. Maryland State Department of Transportation. State Highway Administration

10. Geographical Data

Acreage of surveyed property .25

Acreage of historical setting

Quadrangle name Hereford Quadrangle scale: 1: 24 000

Verbal boundary description and justification

The boundary for the Baltimore County Bridge B0070 consists of a rectangular area that begins at the back of the east abutment and wingwalls, and includes a single-span, closed spandrel bridge, and the west abutment and wingwalls. The boundary includes the entire superstructure and substructure of Bridge No. B0070.

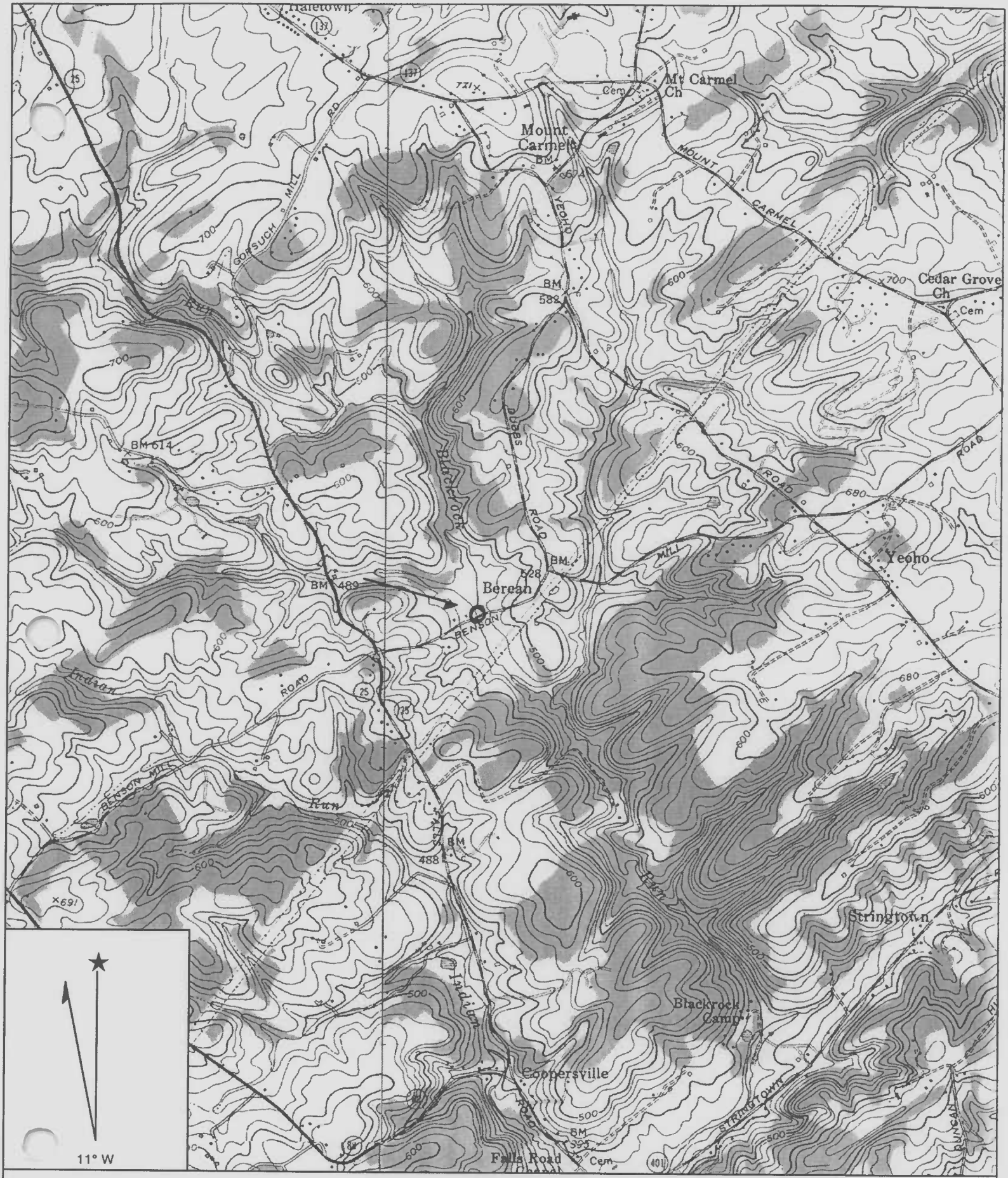
11. Form Prepared by

name/title	Paula A.C. Spero/Kirk E. Ranzetta		
organization	KCI Technologies, Inc.	date	November 2000
street & number	10 North Park Drive	telephone	410-316-7800
city or town	Hunt Valley	state	Maryland, 21030

The Maryland Inventory of Historic Properties was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
DHCD/DHCP
100 Community Place
Crownsville, MD 21032-2023
410-514-7600



Name: HEREFORD
Date: 11/30/2000
Scale: 1 inch equals 2000 feet

Location: 039° 34' 12.8" N 076° 44' 34.8" W
Caption: BA-2849
Baltimore County Bridge B0070
Berean Vicinity

BA-2849

BENSON MILL ROAD OVER BLACKROCK RUN

BALTIMORE CO., MD

TIM TAMBURRINO

4-99

MARYCAND SHPO

W APPROACH

1/23


WEIGHT
LIMIT
9T
15T
28T

BA-2849

BENSON MILL ROAD OVER BLACKROCK RUN

BALTIMORE Co., MD

TIM TAMBURRINO

4-99

MARYLAND SHPO

WEST APPROACH

2/23


WEIGHT
LIMIT
9T
5T
29T

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE Co., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
EAST APPROACH
3/23


WEIGHT
LIMIT
9T
15T
28T

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
E APPROACH
4/23

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
VIEW N, UPSTREAM FROM BRIDGE
5/23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE Co, MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
VIEW S, DOWNSTREAM FROM BRIDGE
6/23

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE Co., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
NORTHERN PARAPET, ROADWAY SIDE
7/23

BA - 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO, MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
SOUTHERN PARAPET, ROADWAY SIDE
8/23

BA-2849

BENSON MILL ROAD OVER BLACKROCK RUN

BALTIMORE Co., MD

TIM TAMBURRINO

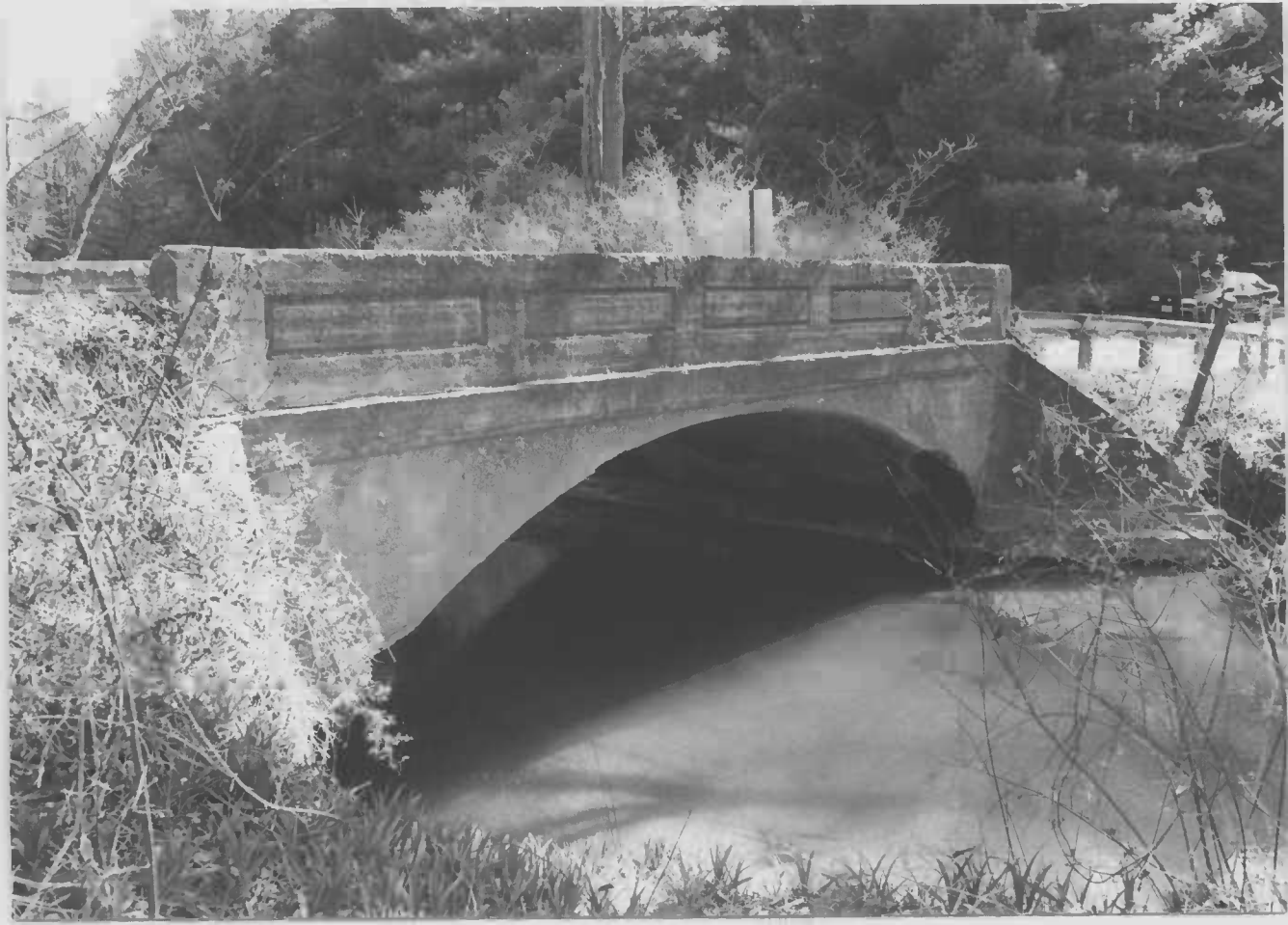
4-99

MARYLAND SHPO

DETAIL OF S PARAPET

9/23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
N ELEVATION
10/23



BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
N ELEVATION
1 / 23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
DETAIL OF NE SPANDREL WALL AND ARCH BARREL
12/23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO, MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
DETAIL OF NW SPANDREL WALL AND ARCH BARREL
13/23

BA-2849
BENSON MILL ROAD OVER BLACK ROCK RUN
BALTIMORE CO, MD
TIM TAMBURRINI
4-99
MARYLAND SHPO
S ELEVATION
14/23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
S ELEVATION
15/23

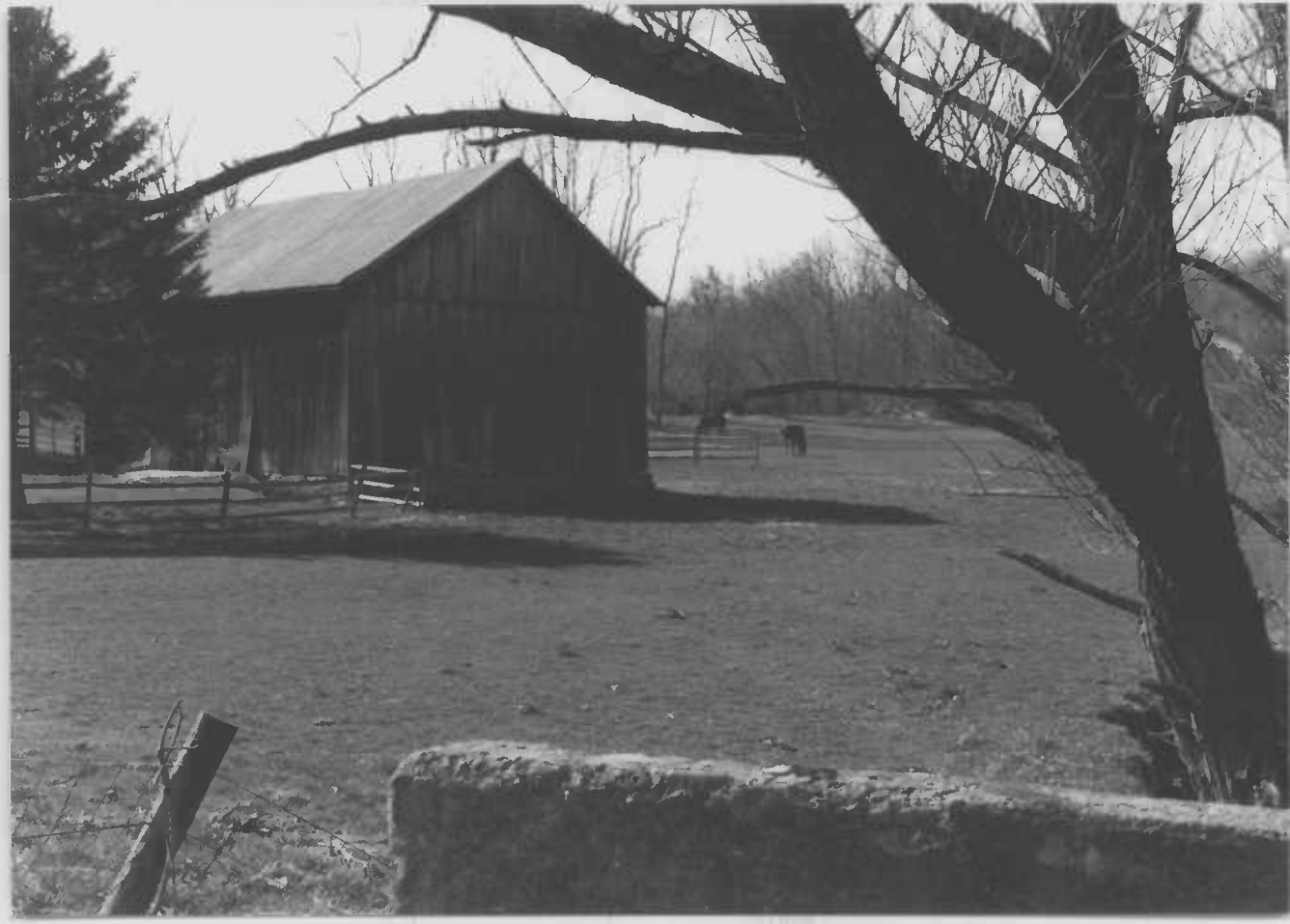
BA - 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
SW WINGWALL
16/23

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE Co., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
SE WINGWALL
17/23

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO

4-99
MARYLAND SHPO
DETAIL OF PARAPET ON S ELEVATION
18/23

BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
ARCH BARREL, VIEW E
19/23



BA-2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
VIEW FROM NW CORNER OF BRIDGE
20/23

BA-2849

BENSON MILL ROAD OVER BLACKROCK RUN

BALTIMORE CO., MD

TIM TAMBURRINO

4-99

MARYLAND SHPO

VIEW FROM NE CORNER OF BRIDGE

21/23

BA- 2849
BENSON MILL ROAD OVER BLACKROCK RUN
BALTIMORE CO., MD
TIM TAMBURRINO
4-99
MARYLAND SHPO
VIEW FROM SE CORNER OF BRIDGE
22/23

BA- 2849

BENSON MILL ROAD OVER BLACKROCK RUN

BALTIMORE CO, MD

TIM TAMBURRINO

4-99

MARYLAND SHPO

VIEW FROM SW CORNER OF BRIDGE

23/23